[counsel listed on signature page]

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN FRANCISCO DIVISION

ORACLE AMERICA, INC.

Plaintiff,

v.

GOOGLE INC.

Defendant.

Case No. CV 10-03561 WHA

JOINT CLAIM CONSTRUCTION AND PREHEARING STATEMENT (PATENT LOCAL RULE 4-3)

Dept.: Courtroom 9, 19th Floor
Judge: Honorable William H. Alsup

Tutorial: April 6, 2011, 1:30 p.m.

Hearing: April 20, 2011, 1:30 p.m.

Pursuant to Patent L.R. 4-3, plaintiff Oracle America, Inc. ("Oracle") and defendant Google Inc. ("Google") hereby submit this Joint Claim Construction and Prehearing Statement.

I. PATENT L.R. 4-3(a): AGREED CONSTRUCTIONS

The parties agree to the following constructions:

Claim Term or Phrase	Patent	Construction
function	'205	a software routine (also called a subroutine, procedure, member and method)
machine instruction	'205	an instruction that directs a computer to perform an operation specified by an operation code (OP code) and optionally one or more operands
native machine instruction / native instruction	'205	a machine instruction that is designed for a specific microprocessor or computer architecture (also called native code)
virtual machine instructions	'205	a machine instruction that is designed for a software emulated microprocessor or computer architecture (also called virtual code)
A processor; A memory a class preloader…	'720	The "processor," "memory," and "class preloader" are separate elements
A processor; A memory means for executing…	'720	The "processor," "memory," and "means for executing" are separate elements

II. PATENT L.R. 4-3(b): PROPOSED CONSTRUCTIONS OF DISPUTED TERMS

Pursuant to ¶ 5 of the Court's November 19, 2010 *Case Management Order* (Dkt. 56), the parties request that the Court address the following six terms or phrases at the claim construction hearing:

1. resolve / resolving ('104 patent)

2. computer-readable medium ('104, '447, '476, and '520 patents) / computer usable medium ('702 patent) / computer-readable storage medium ('720 patent)[1]

3. intermediate form code / intermediate form object code ('104 patent)

4. the play executing step ('520 patent)

[1] Each party has proposed a construction that is identical for all three terms.

5. reduced class file (‘702 patent)

6. symbolic (data/field) reference (‘104 patent)

The chart attached as Appendix A contain each party’s proposed constructions of these disputed claim phrases, together with an identification of intrinsic evidence and extrinsic evidence proffered by the parties in support of their constructions. Each party reserves the right to refer to the evidence proffered by the other.

The chart attached as Appendix B contain each party’s proposed constructions of other disputed claim phrases, together with an identification of intrinsic evidence and extrinsic evidence proffered by the parties in support of their constructions. Each party reserves the right to refer to the evidence proffered by the other.

III. PATENT L.R. 4-3(c): TEN MOST SIGNIFICANT DISPUTED CLAIM TERMS FOR CONSTRUCTION

The parties here identify the ten claim terms whose constructions are believed to be most significant to the resolution of this case, as well as those whose construction is believed by either Google or Oracle to be case or claim dispositive:

Claim Term or Phrase	Patent	Believed Dispositive?
computer-readable medium / computer usable medium / computer-readable storage medium	‘104, ‘447, ‘476, ‘520, ‘702, ‘720	Y
symbolic (data/field) reference	‘104	Y
reduced class file	‘702	Y
resolve / resolving	‘104	Y
intermediate form code / intermediate form object code	‘104	Y
the play executing step	‘520	Y
class resolver / resolving	‘720	Y
class preloader	‘720	Y
numeric(al) reference(s)	‘104	
instruction	‘520	Y

In the process of narrowing the number of claim terms to be identified for the claim construction hearing, the parties dropped many of the claim terms initially identified for construction in their respective Local Patent Rule 4-1(a) and 4-2(a) Statements. As recognized in ¶ 5 of the Court's November 19, 2010 *Case Management Order* (Dkt. 56), the parties believe that there may be disputes regarding the construction of claim terms not identified herein for construction that nevertheless become significant to the resolution of issues whether on summary judgment or at trial, and the parties therefore agreed that the lack of inclusion of a term in a party's Local Patent Rule 4-1(a), 4-2(a) or 4-3 Statements or subsequent Markman briefing will not operate as any sort of waiver as to either party's right to later seek construction of the term, and will not prejudice in any way the right of either party to argue for a particular meaning of any such claim terms in future proceedings in this action.

IV. PATENT L.R. 4-3(d): ANTICIPATED LENGTH OF CLAIM CONSTRUCTION HEARING

The parties anticipate that the claim construction hearing should last approximately three hours, as the Court directs.

V. PATENT L.R. 4-3(e): WITNESSES

The parties do not intend to call any witnesses at the claim construction hearing and neither party has identified any percipient or expert witness pursuant to Local Patent Rules 4-2(b) or 4-3(e).

[signature pages follow]

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Attestation of Concurrence

I, Marc David Peters, as the ECF user and filer of this document, attest that concurrence in the filing of this document has been obtained from each of the above signatories.

Dated: February 22, 2011

By: /s/ Marc David Peters
Marc David Peters

Appendix A

Proposed Constructions and Evidence for the Six Phrases Submitted for Construction

Claim Term	Oracle Proposed Construction & Supporting Evidence	Google Proposed Construction & Supporting Evidence
computer-readable medium *('104 patent)*	a storage device for use by a computer **Intrinsic Evidence:** **Specification:** 1:20-2:9; 2:25-34; 3:31-67; Fig. 2 **Extrinsic Evidence:** DICTIONARY OF COMPUTER AND INTERNET TERMS media, medium (7th ed. 2000) DICTIONARY OF COMPUTING data medium, medium (1983) HARPER COLLINS DICTIONARY OF COMPUTER TERMS medium (1991) IBM DICTIONARY OF COMPUTING data medium, machine-readable, machine-readable medium, medium (1994) THE IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS machine-readable medium, media, medium (6th ed. 1996) THE ILLUSTRATED DICTIONARY OF ELECTRONICS medium (7th ed. 1997) THE ILLUSTRATED DICTIONARY OF MICROCOMPUTERS media, medium (3d ed. 1990) MCGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS medium (5th ed. 1994) MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY media, medium (10th ed. 1996) MICROSOFT PRESS COMPUTER DICTIONARY media, medium (3d ed. 1997) U.S. Patent No. 6,529,903 to Smith et al., filed 12/26/2000	any medium that participates in providing instructions to a processor for execution, including but not limited to, optical or magnetic disks, dynamic memory, coaxial cables, copper wire, fiber optics, acoustic or light waves, radio-waves and infra-red data communications **Intrinsic/Extrinsic Evidence:** *'104 patent* at 1:20-2:9; 2:25-34; 3:31-67; Fig. 2; and claims 11-41 (In citing the foregoing portions of the '104 patent, Google does not concede that this phrase has adequate support under 35 U.S.C. § 112). *'520 patent* at 4:48-54. *'447 patent* at 4:58-65; 5:4-6:16; Fig. 1. *'476 patent* at 4:57-66; 5:4-6:18; Fig. 1. *'702 patent* at 2:62-4:60; 5:61-6:20; 6:37-7:18; Figs. 1, 2. *'205 patent* at 4:38-54; Fig. 1. U.S. Patent No. 5,903,899 at 17:20-57. *See also*, other patents issued to Sun/Oracle that claim, define or otherwise describe "computer-readable medium" or similar related phrases (http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&u=/netahtml/PTO/search-adv.htm&r=0&p=1&f=S&l=50&Query=AN/Sun+and+%22computer-readable+medium%22&d=PTXT). For example: U.S. Patents Nos. 5,953,522; 5,946,489; 5,970,249; 5,978,588; 5,983,021; 6,115,715; 6,853,868; 6,272,517; 6,271,838; 6,542,920; 6,938,085; 6,983,455; 6,499,049; 6,952,760; 6,980,916; 7,278,132; 5,630,136; 5,659,758; 7,213,240; 6,047,377; 6,044,467. Upon information and belief, Sun's Star7 (*7) was a prototype for

Claim Term	Oracle Proposed Construction & Supporting Evidence	Google Proposed Construction & Supporting Evidence
	U.S. Patent No. 7,650,330 to Brin, filed 12/15/2003 U.S. Patent No. 7,647,353 to Chandhok et al., filed 11/14/2006 U.S. Patent No. 7,249,121 to Bharat et al., filed 12/05/2000 U.S. Patent No. 7,146,358 to Gravano et al., filed 08/28/2001 U.S. Patent No. 7,027,987 to Franz et al., filed 02/07/2001 U.S. Patent No. 6,839,702 to Patel et al., filed 12/13/2000 U.S. Patent No. 6,678,681 to Brin, filed 03/09/2000 U.S. Patent No. 6,735,624 to Rubin et al., filed 04/07/2000 U.S. Patent No. 6,721,804 to Rubin et al., filed 11/15/2000 U.S. Patent No. 6,701,522 to Rubin et al., filed 04/07/2000 and similar patents and patent applications USPTO Examination Guidelines for Computer-Related Inventions (1996)	a SPARC based, handheld wireless PDA, with a 5" color LCD with touchscreen input, a new 16 bit --5:6:5 color hardware double buffered NTSC framebuffer, 900MHz wireless networking, PCMCIA bus interfaces, multi-media audio codec, a new power supply/battery interface, a version of Unix that runs in under a megabyte, including drivers for PCMCIA, radio networking, touchscreen, display, flash RAM file system, execute-in-place, split I/D cache, with cached framebuffer support, a new small, safe, secure, distributed, robust, interpreted, garbage collected, multi-threaded, architecture neutral, high performance, dynamic programming language, While the Star7 may have never entered commercial production, Oak, the language behind it all, became the very popular Java programming language. *See generally*, http://www.youtube.com/watch?v=Ahg8OBYixL0; http://www.helium.com/items/1101180-the-history-of-java; https://duke.dev.java.net/green/; Todd Greanier, Java foundations (Sep 17, 2004) at 2-3 (http://books.google.com/books?id=vbBXKgDJun0C&pg=PA2&lpg=PA2&dq=sun+star7+gosling&source=bl&ots=LeQNYvs_DE&sig=IR3Wp6fNM58OFdyIzz3sEqgCTi4&hl=en&ei=d89eTaKSEoKBlAeAtYCfDA&sa=X&oi=book_result&ct=result&resnum=8&ved=0CEgQ6AEwBw#v=onepage&q=sun%20star7%20gosling&f=false).
intermediate form (object) code *('104 patent)*	executable code that is generated by compiling source code and is independent of any computer instruction set **Intrinsic Evidence:** **Specification:** Title; Abstract; 1:58-2:9; 2:25-67; 4:13-5:49; Figs. 4-8 **Prosecution history:** May 27, 1994 '685 Examiner's Statement of Reasons for Allowance	compiled source code that is not executable code for a specific computer architecture **Intrinsic/Extrinsic Evidence:** *'104 patent* at Abstract; 1:26-32; 1:58-2:15; 2:25-67; 4:13-5:49; Figs. 4-8; and claims 11, 12, 17, 19-23, 27-35, and 39-41. U.S. Patent No. 5,367,685 File History, May 27, 1994, Examiner's Statement of Reasons for Allowance. Timothy Budd, *A Little Smalltalk*, Addison-Wesley, 1987, pp. 150-60. Richard L. Sites & Daniel R. Perkins, "Univeral P-Code Definition, version (0.3)," Dept. of Electrical Eng'g and Computer

Claim Term	Oracle Proposed Construction & Supporting Evidence	Google Proposed Construction & Supporting Evidence
		Sciences, University of California at San Diego, July 1979, Abstract. Ali-Reza Adl-Tabatabai et al., "Efficient and Language-Independent Mobile Programs," Proceedings of PLDI '96, ACM SIGPlAN '96 Conf. on Programming Language Design and Implementation, May 1996, pp. 134. Tanenbaum et al., "A Practical Tool Kit for Making Portable Compilers," Computing Practices, Communications of the ACM, Sept. 1983, Vol. 26, No. 9, pp. 654-60. A.V. Aho et al., *Compilers Principles, Techniques and Tools*, Addison-Wesly, 1986, pp. 25-388 and 463-512. David Gries, *Compiler Construction for Digital Computers*, John Wiley & Sons, Inc., 1971, pp. 2-3, 245-46, 328-31.
resolve / resolving *('104 patent)*	No construction necessary. "Resolving" a symbolic reference is determining its corresponding numerical reference. **Intrinsic Evidence:** **Specification:** Title; Abstract; 1:15-20; 1:25-43; 1:58-2:9; 2:16-25; 2:25-59; 3:8-9; 3:26-48; 5:9-23; 5:32-49; Figs. 1, 6, 7, 8 **Extrinsic Evidence:** Gosling et al., THE JAVA™ LANGUAGE SPECIFICATION 221 (1996) ("The binary representation of a class or interface references other classes or interfaces and their fields, methods, and constructors symbolically, using the binary names (§13.1) of the other classes and interfaces (§13.1)…Before a symbolic reference can be used it must undergo *resolution*, wherein a symbolic reference is checked to be correct and, typically, replaced with a direct reference that can be more efficiently processed if the reference is used repeatedly.")	replace/replacing at least for the life of the process **Intrinsic/Extrinsic Evidence:** *'104 patent* at Abstract; 1:15-20; 1:25-43; 1:58-2:67; 5:9-49; and Figs. 1, 6-8.

Claim Term	Oracle Proposed Construction & Supporting Evidence	Google Proposed Construction & Supporting Evidence
symbolic (data/field) reference(s) *('104 patent)*	No construction necessary. The ordinary meaning is "a reference by name" **Intrinsic Evidence:** **Specification:** Abstract; 1:58-2:15; 2:35-59; 4:13-46; 5:9-23; 5:31-49; Figs. 1B, 5, 6, 7, 8	a dynamic reference to data that is string- or character-based **Intrinsic/Extrinsic Evidence:** *'104 patent* at Abstract, 1:58-2:15; 2:35-59; 4:13-46; 5:10-23; 5:32-49; Figs. 1A, 1B, 5-8; and claims 11-41. Computer Dictionary, Second Ed., Microsoft Press 1994 ("MSFT 1994"): "**Symbolic address** A memory address that can be referred to in a program by name rather than by number. The interpreter, compiler, or assembler translates the name into the number that specifies the address." Random House Webster's Computer & Internet Dictionary (3d ed. 1999): **"absolute address** A fixed address in memory. The term *absolute* distinguishes it from a relative address, which indicates a location by specifying a distance from another location. Absolute addresses are also called *real addresses* and *machine addresses*." Webster's New World Dictionary of Computer Terms (5th ed. 1994): "**absolute addressing** A method of machine addressing in which the address part of an instruction contains an absolute address." "**numeric** Pertaining to numerals or to representation by means of numerals. Compare ALPHANUMERIC." "**numeric character** Same as DIGIT." "**symbolic address** An address, expressed in symbols convenient to the program writer, that must be translated into an absolute address (usually by an assembler) before it can be interpreted by a computer. Contrast with EXPLICIT ADDRESS." "**symbol table** A list of names used in a program with brief descriptions and storage addresses."

Claim Term	Oracle Proposed Construction & Supporting Evidence	Google Proposed Construction & Supporting Evidence
computer-readable medium *('447 patent)*	a storage device for use by a computer **Intrinsic Evidence:** **Specification:** 4:59-65; 5:4-2; 5:25-30; Fig. 1 **Extrinsic Evidence:** DICTIONARY OF COMPUTER AND INTERNET TERMS media, medium (7th ed. 2000) DICTIONARY OF COMPUTING data medium, medium (1983) HARPER COLLINS DICTIONARY OF COMPUTER TERMS medium (1991) IBM DICTIONARY OF COMPUTING data medium, machine-readable, machine-readable medium, medium (1994) THE IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS machine-readable medium, media, medium (6th ed. 1996) THE ILLUSTRATED DICTIONARY OF ELECTRONICS medium (7th ed. 1997) THE ILLUSTRATED DICTIONARY OF MICROCOMPUTERS media, medium (3d ed. 1990) MCGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS medium (5th ed. 1994) MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY media, medium (10th ed. 1996) MICROSOFT PRESS COMPUTER DICTIONARY media, medium (3d ed. 1997) U.S. Patent No. 6,529,903 to Smith et al., filed 12/26/2000 U.S. Patent No. 7,650,330 to Brin, filed 12/15/2003 U.S. Patent No. 7,647,353 to Chandhok et al., filed 11/14/2006 U.S. Patent No. 7,249,121 to Bharat et al., filed 12/05/2000	any medium that participates in providing instructions to a processor for execution, including but not limited to, optical or magnetic disks, dynamic memory, coaxial cables, copper wire, fiber optics, acoustic or light waves, radio-waves and infra-red data communications **Intrinsic/Extrinsic Evidence:** *'104 patent* at 1:20-2:9; 2:25-34; 3:31-67; Fig. 2 (In citing the foregoing portions of the '104 patent, Google does not concede that this phrase has adequate support under 35 U.S.C. § 112). *'520 patent* at 4:48-54. *'447 patent* at 4:58-65; 5:4-6:16; Fig. 1. *'476 patent* at 4:57-66; 5:4-6:18; Fig. 1. *'702 patent* at 2:62-4:60; 5:61-6:20; 6:37-7:18; Figs. 1, 2. *'205 patent* at 4:38-54; Fig. 1. U.S. Patent No. 5,903,899 at 17:20-57. *See also*, other patents issued to Sun/Oracle that claim, define or otherwise describe "computer-readable medium" or similar related phrases (http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&u=/netahtml/PTO/search-adv.htm&r=0&p=1&f=S&l=50&Query=AN/Sun+and+%22computer-readable+medium%22&d=PTXT). For example: U.S. Patents Nos. 5,953,522; 5,946,489; 5,970,249; 5,978,588; 5,983,021; 6,115,715; 6,853,868; 6,272,517; 6,271,838; 6,542,920; 6,938,085; 6,983,455; 6,499,049; 6,952,760; 6,980,916; 7,278,132; 5,630,136; 5,659,758; 7,213,240; 6,047,377; 6,044,467. Upon information and belief, Sun's Star7 (*7) was a prototype for a SPARC based, handheld wireless PDA, with a 5" color LCD with touchscreen input, a new 16 bit --5:6:5 color hardware double buffered NTSC framebuffer, 900MHz wireless networking, PCMCIA bus interfaces, multi-media audio codec, a new power supply/battery interface, a version of Unix that runs in under a megabyte, including drivers for PCMCIA, radio networking,

Claim Term	Oracle Proposed Construction & Supporting Evidence	Google Proposed Construction & Supporting Evidence
	U.S. Patent No. 7,146,358 to Gravano et al., filed 08/28/2001 U.S. Patent No. 7,027,987 to Franz et al., filed 02/07/2001 U.S. Patent No. 6,839,702 to Patel et al., filed 12/13/2000 U.S. Patent No. 6,678,681 to Brin, filed 03/09/2000 U.S. Patent No. 6,735,624 to Rubin et al., filed 04/07/2000 U.S. Patent No. 6,721,804 to Rubin et al., filed 11/15/2000 U.S. Patent No. 6,701,522 to Rubin et al., filed 04/07/2000 and similar patents and patent applications USPTO Examination Guidelines for Computer-Related Inventions (1996)	touchscreen, display, flash RAM file system, execute-in-place, split I/D cache, with cached framebuffer support, a new small, safe, secure, distributed, robust, interpreted, garbage collected, multi-threaded, architecture neutral, high performance, dynamic programming language, While the Star7 may have never entered commercial production, Oak, the language behind it all, became the very popular Java programming language. *See generally*, http://www.youtube.com/watch?v=Ahg8OBYixL0; http://www.helium.com/items/1101180-the-history-of-java; https://duke.dev.java.net/green/; Todd Greanier, Java foundations (Sep 17, 2004) at 2-3 (http://books.google.com/books?id=vbBXKgDJun0C&pg=PA2&lpg=PA2&dq=sun+star7+gosling&source=bl&ots=LeQNYvs_DE&sig=IR3Wp6fNM58OFdyIzz3sEqgCTi4&hl=en&ei=d89eTaKSEoKBlAeAtYCfDA&sa=X&oi=book_result&ct=result&resnum=8&ved=0CEgQ6AEwBw#v=onepage&q=sun%20star7%20gosling&f=false).
computer-readable medium *('476 patent)*	a storage device for use by a computer **Intrinsic Evidence:** **Specification:** 4:57-65; 5:4-25; 5:25-30; Fig. 1 **Extrinsic Evidence:** DICTIONARY OF COMPUTER AND INTERNET TERMS media, medium (7th ed. 2000) DICTIONARY OF COMPUTING data medium, medium (1983) HARPER COLLINS DICTIONARY OF COMPUTER TERMS medium (1991) IBM DICTIONARY OF COMPUTING data medium, machine-readable, machine-readable medium, medium (1994) THE IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS machine-readable medium, media, medium (6th ed. 1996)	any medium that participates in providing instructions to a processor for execution, including but not limited to, optical or magnetic disks, dynamic memory, coaxial cables, copper wire, fiber optics, acoustic or light waves, radio-waves and infra-red data communications **Intrinsic/Extrinsic Evidence:** *'104 patent* at 1:20-2:9; 2:25-34; 3:31-67; Fig. 2 (In citing the foregoing portions of the '104 patent, Google does not concede that this phrase has adequate support under 35 U.S.C. § 112). *'520 patent* at 4:48-54. *'447 patent* at 4:58-65; 5:4-6:16; Fig. 1. *'476 patent* at 4:57-66; 5:4-6:18; Fig. 1. *'702 patent* at 2:62-4:60; 5:61-6:20; 6:37-7:18; Figs. 1, 2. *'205 patent* at 4:38-54; Fig. 1. U.S. Patent No. 5,903,899 at 17:20-57. *See also*, other patents issued to Sun/Oracle that claim, define or

Claim Term	Oracle Proposed Construction & Supporting Evidence	Google Proposed Construction & Supporting Evidence
	THE ILLUSTRATED DICTIONARY OF ELECTRONICS medium (7th ed. 1997) THE ILLUSTRATED DICTIONARY OF MICROCOMPUTERS media, medium (3d ed. 1990) MCGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS medium (5th ed. 1994) MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY media, medium (10th ed. 1996) MICROSOFT PRESS COMPUTER DICTIONARY media, medium (3d ed. 1997) U.S. Patent No. 6,529,903 to Smith et al., filed 12/26/2000 U.S. Patent No. 7,650,330 to Brin, filed 12/15/2003 U.S. Patent No. 7,647,353 to Chandhok et al., filed 11/14/2006 U.S. Patent No. 7,249,121 to Bharat et al., filed 12/05/2000 U.S. Patent No. 7,146,358 to Gravano et al., filed 08/28/2001 U.S. Patent No. 7,027,987 to Franz et al., filed 02/07/2001 U.S. Patent No. 6,839,702 to Patel et al., filed 12/13/2000 U.S. Patent No. 6,678,681 to Brin, filed 03/09/2000 U.S. Patent No. 6,735,624 to Rubin et al., filed 04/07/2000 U.S. Patent No. 6,721,804 to Rubin et al., filed 11/15/2000 U.S. Patent No. 6,701,522 to Rubin et al., filed 04/07/2000 and similar patents and patent applications USPTO Examination Guidelines for Computer-Related Inventions (1996)	otherwise describe "computer-readable medium" or similar related phrases (http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&u=/netahtml/PTO/search-adv.htm&r=0&p=1&f=S&l=50&Query=AN/Sun+and+%22computer-readable+medium%22&d=PTXT). For example: U.S. Patents Nos. 5,953,522; 5,946,489; 5,970,249; 5,978,588; 5,983,021; 6,115,715; 6,853,868; 6,272,517; 6,271,838; 6,542,920; 6,938,085; 6,983,455; 6,499,049; 6,952,760; 6,980,916; 7,278,132; 5,630,136; 5,659,758; 7,213,240; 6,047,377; 6,044,467. Upon information and belief, Sun's Star7 (*7) was a prototype for a SPARC based, handheld wireless PDA, with a 5" color LCD with touchscreen input, a new 16 bit --5:6:5 color hardware double buffered NTSC framebuffer, 900MHz wireless networking, PCMCIA bus interfaces, multi-media audio codec, a new power supply/battery interface, a version of Unix that runs in under a megabyte, including drivers for PCMCIA, radio networking, touchscreen, display, flash RAM file system, execute-in-place, split I/D cache, with cached framebuffer support, a new small, safe, secure, distributed, robust, interpreted, garbage collected, multi-threaded, architecture neutral, high performance, dynamic programming language, While the Star7 may have never entered commercial production, Oak, the language behind it all, became the very popular Java programming language. *See generally*, http://www.youtube.com/watch?v=Ahg8OBYixL0; http://www.helium.com/items/1101180-the-history-of-java; https://duke.dev.java.net/green/; Todd Greanier, Java foundations (Sep 17, 2004) at 2-3 (http://books.google.com/books?id=vbBXKgDJun0C&pg=PA2&lpg=PA2&dq=sun+star7+gosling&source=bl&ots=LeQNYvs_DE&sig=IR3Wp6fNM58OFdyIzz3sEqgCTi4&hl=en&ei=d89eTaKSEoKBlAeAtYCfDA&sa=X&oi=book_result&ct=result&resnum=8&ved=0CEgQ6AEwBw#v=onepage&q=sun%20star7%20gosling&f=false).

Claim Term	Oracle Proposed Construction & Supporting Evidence	Google Proposed Construction & Supporting Evidence
computer-readable medium *('520 patent)*	a storage device for use by a computer **Intrinsic Evidence:** **Specification:** 3:17-30; 4:48-56; 11:14-16; Fig. 2 **Extrinsic Evidence:** DICTIONARY OF COMPUTER AND INTERNET TERMS media, medium (7th ed. 2000) DICTIONARY OF COMPUTING data medium, medium (1983) HARPER COLLINS DICTIONARY OF COMPUTER TERMS medium (1991) IBM DICTIONARY OF COMPUTING data medium, machine-readable, machine-readable medium, medium (1994) THE IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS machine-readable medium, media, medium (6th ed. 1996) THE ILLUSTRATED DICTIONARY OF ELECTRONICS medium (7th ed. 1997) THE ILLUSTRATED DICTIONARY OF MICROCOMPUTERS media, medium (3d ed. 1990) MCGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS medium (5th ed. 1994) MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY media, medium (10th ed. 1996) MICROSOFT PRESS COMPUTER DICTIONARY media, medium (3d ed. 1997) U.S. Patent No. 6,529,903 to Smith et al., filed 12/26/2000 U.S. Patent No. 7,650,330 to Brin, filed 12/15/2003 U.S. Patent No. 7,647,353 to Chandhok et al., filed 11/14/2006 U.S. Patent No. 7,249,121 to Bharat et al., filed 12/05/2000	any medium that participates in providing instructions to a processor for execution, including but not limited to, optical or magnetic disks, dynamic memory, coaxial cables, copper wire, fiber optics, acoustic or light waves, radio-waves and infra-red data communications **Intrinsic/Extrinsic Evidence:** *'104 patent* at 1:20-2:9; 2:25-34; 3:31-67; Fig. 2 (In citing the foregoing portions of the '104 patent, Google does not concede that this phrase has adequate support under 35 U.S.C. § 112). *'520 patent* at 4:48-54. *'447 patent* at 4:58-65; 5:4-6:16; Fig. 1. *'476 patent* at 4:57-66; 5:4-6:18; Fig. 1. *'702 patent* at 2:62-4:60; 5:61-6:20; 6:37-7:18; Figs. 1, 2. *'205 patent* at 4:38-54; Fig. 1. U.S. Patent No. 5,903,899 at 17:20-57. *See also*, other patents issued to Sun/Oracle that claim, define or otherwise describe "computer-readable medium" or similar related phrases (http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&u=/netahtml/PTO/search-adv.htm&r=0&p=1&f=S&l=50&Query=AN/Sun+and+%22computer-readable+medium%22&d=PTXT). For example: U.S. Patents Nos. 5,953,522; 5,946,489; 5,970,249; 5,978,588; 5,983,021; 6,115,715; 6,853,868; 6,272,517; 6,271,838; 6,542,920; 6,938,085; 6,983,455; 6,499,049; 6,952,760; 6,980,916; 7,278,132; 5,630,136; 5,659,758; 7,213,240; 6,047,377; 6,044,467. Upon information and belief, Sun's Star7 (*7) was a prototype for a SPARC based, handheld wireless PDA, with a 5" color LCD with touchscreen input, a new 16 bit --5:6:5 color hardware double buffered NTSC framebuffer, 900MHz wireless networking, PCMCIA bus interfaces, multi-media audio codec, a new power supply/battery interface, a version of Unix that runs in under a megabyte, including drivers for PCMCIA, radio networking,

Claim Term	Oracle Proposed Construction & Supporting Evidence	Google Proposed Construction & Supporting Evidence
	U.S. Patent No. 7,146,358 to Gravano et al., filed 08/28/2001 U.S. Patent No. 7,027,987 to Franz et al., filed 02/07/2001 U.S. Patent No. 6,839,702 to Patel et al., filed 12/13/2000 U.S. Patent No. 6,678,681 to Brin, filed 03/09/2000 U.S. Patent No. 6,735,624 to Rubin et al., filed 04/07/2000 U.S. Patent No. 6,721,804 to Rubin et al., filed 11/15/2000 U.S. Patent No. 6,701,522 to Rubin et al., filed 04/07/2000 and similar patents and patent applications USPTO Examination Guidelines for Computer-Related Inventions (1996)	touchscreen, display, flash RAM file system, execute-in-place, split I/D cache, with cached framebuffer support, a new small, safe, secure, distributed, robust, interpreted, garbage collected, multi-threaded, architecture neutral, high performance, dynamic programming language, While the Star7 may have never entered commercial production, Oak, the language behind it all, became the very popular Java programming language. *See generally*, http://www.youtube.com/watch?v=Ahg8OBYixL0; http://www.helium.com/items/1101180-the-history-of-java; https://duke.dev.java.net/green/; Todd Greanier, Java foundations (Sep 17, 2004) at 2-3 (http://books.google.com/books?id=vbBXKgDJun0C&pg=PA2&lpg=PA2&dq=sun+star7+gosling&source=bl&ots=LeQNYvs_DE&sig=IR3Wp6fNM58OFdyIzz3sEqgCTi4&hl=en&ei=d89eTaKSEoKBlAeAtYCfDA&sa=X&oi=book_result&ct=result&resnum=8&ved=0CEgQ6AEwBw#v=onepage&q=sun%20star7%20gosling&f=false).
the play executing step *('520 patent)*	"The play executing step" in claims 3 and 4 is a reference to the "simulating execution" step in claim 1 **Intrinsic Evidence:** **Specification:** 2:64-3:1; 3:10-16; 4:64-66; 5:11-16; 5:44-63; original claims 3, 4, 5 **Prosecution history:** July 21, 1999 Office Action; Oct. 18, 1999 Amendment; Jan. 4, 2000 Notice of Allowance; Jan. 4, 2000 Interview Summary	Indefinite – cannot be construed.
computer usable medium *('702 patent)*	a storage device for use by a computer **Intrinsic Evidence:** **Specification:** 5:61-6:18; 7:10-14; Figs. 1, 2 **Extrinsic Evidence:** DICTIONARY OF COMPUTER AND INTERNET TERMS media,	any medium that participates in providing instructions to a processor for execution, including but not limited to, optical or magnetic disks, dynamic memory, coaxial cables, copper wire, fiber optics, acoustic or light waves, radio-waves and infra-red data communications **Intrinsic/Extrinsic Evidence:**

Claim Term	Oracle Proposed Construction & Supporting Evidence	Google Proposed Construction & Supporting Evidence
	medium (7th ed. 2000) DICTIONARY OF COMPUTING data medium, medium (1983) HARPER COLLINS DICTIONARY OF COMPUTER TERMS medium (1991) IBM DICTIONARY OF COMPUTING data medium, machine-readable, machine-readable medium, medium (1994) THE IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS machine-readable medium, media, medium (6th ed. 1996) THE ILLUSTRATED DICTIONARY OF ELECTRONICS medium (7th ed. 1997) THE ILLUSTRATED DICTIONARY OF MICROCOMPUTERS media, medium (3d ed. 1990) MCGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS medium (5th ed. 1994) MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY media, medium (10th ed. 1996) MICROSOFT PRESS COMPUTER DICTIONARY media, medium (3d ed. 1997) U.S. Patent No. 6,529,903 to Smith et al., filed 12/26/2000 U.S. Patent No. 7,650,330 to Brin, filed 12/15/2003 U.S. Patent No. 7,647,353 to Chandhok et al., filed 11/14/2006 U.S. Patent No. 7,249,121 to Bharat et al., filed 12/05/2000 U.S. Patent No. 7,146,358 to Gravano et al., filed 08/28/2001 U.S. Patent No. 7,027,987 to Franz et al., filed 02/07/2001 U.S. Patent No. 6,839,702 to Patel et al., filed 12/13/2000 U.S. Patent No. 6,678,681 to Brin, filed 03/09/2000 U.S. Patent No. 6,735,624 to Rubin et al., filed	*'520 patent* at 4:48-54. *'447 patent* at 4:58-65; 5:4-6:16; Fig. 1. *'476 patent* at 4:57-66; 5:4-6:18; Fig. 1. *'702 patent* at 2:62-4:60; 5:61-6:20; 6:37-7:18; Figs. 1, 2. *'205 patent* at 4:38-54; Fig. 1. *See also*, other patents issued to Sun/Oracle that claim, define or otherwise describe "computer usable medium" or similar related phrases (http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&u=/netahtml/PTO/search-adv.htm&r=0&p=1&f=S&l=50&Query=AN/Sun+and+%22computer+usable+medium%22&d=PTXT). For example: U.S. Patents Nos. 5,953,522; 5,946,489; 5,970,249; 5,978,588; 5,983,021; 6,115,715; 6,853,868; 6,272,517; 6,271,838; 6,542,920; 6,938,085; 6,983,455; 6,499,049; 6,952,760; 6,980,916; 7,278,132; 5,630,136; 5,659,758; 7,213,240; 6,047,377; 6,044,467. Upon information and belief, Sun's Star7 (*7) was a prototype for a SPARC based, handheld wireless PDA, with a 5" color LCD with touchscreen input, a new 16 bit --5:6:5 color hardware double buffered NTSC framebuffer, 900MHz wireless networking, PCMCIA bus interfaces, multi-media audio codec, a new power supply/battery interface, a version of Unix that runs in under a megabyte, including drivers for PCMCIA, radio networking, touchscreen, display, flash RAM file system, execute-in-place, split I/D cache, with cached framebuffer support, a new small, safe, secure, distributed, robust, interpreted, garbage collected, multi-threaded, architecture neutral, high performance, dynamic programming language, While the Star7 may have never entered commercial production, Oak, the language behind it all, became the very popular Java programming language. *See generally*, http://www.youtube.com/watch?v=Ahg8OBYixL0; http://www.helium.com/items/1101180-the-history-of-java; https://duke.dev.java.net/green/; Todd Greanier, Java foundations (Sep 17, 2004) at 2-3

Claim Term	Oracle Proposed Construction & Supporting Evidence	Google Proposed Construction & Supporting Evidence
	04/07/2000 U.S. Patent No. 6,721,804 to Rubin et al., filed 11/15/2000 U.S. Patent No. 6,701,522 to Rubin et al., filed 04/07/2000 and similar patents and patent applications USPTO Examination Guidelines for Computer-Related Inventions (1996)	(http://books.google.com/books?id=vbBXKgDJun0C&pg=PA2&lpg=PA2&dq=sun+star7+gosling&source=bl&ots=LeQNYvs_DE&sig=IR3Wp6fNM58OFdyIzz3sEqgCTi4&hl=en&ei=d89eTaKSEoKBlAeAtYCfDA&sa=X&oi=book_result&ct=result&resnum=8&ved=0CEgQ6AEwBw#v=onepage&q=sun%20star7%20gosling&f=false).
reduced class file *('702 patent)*	No construction necessary. A "reduced class file" contains a subset of the code and data contained in a class file **Intrinsic Evidence:** **Specification:** Abstract; 4:64-5:5; 5:15-17; 5:23-27; 9:35-43; 9:55-65; 10:2-15; Fig. 4	a class file containing a subset of the data and instructions contained in a corresponding original class file **Intrinsic/Extrinsic Evidence:** *'702 patent* at Abstract; 4:64-5:27; 9: 35-43; 9:55-65; 10:2-15; Figs. 4-5; and claims 11-41.
computer-readable storage medium *('720 patent)*	a storage device for use by a computer **Intrinsic Evidence:** **Specification:** 4:24-46; 5:48-50; original claim 23; Fig. 1; Fig. 2 **Extrinsic Evidence:** DICTIONARY OF COMPUTER AND INTERNET TERMS media, medium (7th ed. 2000) DICTIONARY OF COMPUTING data medium, medium (1983) HARPER COLLINS DICTIONARY OF COMPUTER TERMS medium (1991) IBM DICTIONARY OF COMPUTING data medium, machine-readable, machine-readable medium, medium (1994) THE IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS machine-readable medium, media, medium (6th ed. 1996) THE ILLUSTRATED DICTIONARY OF ELECTRONICS medium (7th ed. 1997)	any medium that participates in providing instructions to a processor for execution, including but not limited to, optical or magnetic disks, dynamic memory, coaxial cables, copper wire, fiber optics, acoustic or light waves, radio-waves and infra-red data communications **Intrinsic/Extrinsic Evidence:** *'520 patent* at 4:48-54. *'447 patent* at 4:58-65; 5:4-6:16; Fig. 1. *'476 patent* at 4:57-66; 5:4-6:18; Fig. 1. *'702 patent* at 2:62-4:60; 5:61-6:20; 6:37-7:18; Figs. 1, 2. *'205 patent* at 4:38-54; Fig. 1. U.S. Patent 6,829,761, at 5:63-6:33. *See also*, other patents issued to Sun/Oracle that claim, define or otherwise describe "computer-readable storage medium" or similar related phrases (http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&u=/netahtml/PTO/search-adv.htm&r=0&p=1&f=S&l=50&Query=AN/Sun+and+%22computer-readable+storage+medium%22&d=PTXT). For example:

Claim Term	Oracle Proposed Construction & Supporting Evidence	Google Proposed Construction & Supporting Evidence
	THE ILLUSTRATED DICTIONARY OF MICROCOMPUTERS media, medium (3d ed. 1990) MCGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS medium (5th ed. 1994) MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY media, medium (10th ed. 1996) MICROSOFT PRESS COMPUTER DICTIONARY media, medium (3d ed. 1997) U.S. Patent No. 6,529,903 to Smith et al., filed 12/26/2000 U.S. Patent No. 7,650,330 to Brin, filed 12/15/2003 U.S. Patent No. 7,647,353 to Chandhok et al., filed 11/14/2006 U.S. Patent No. 7,249,121 to Bharat et al., filed 12/05/2000 U.S. Patent No. 7,146,358 to Gravano et al., filed 08/28/2001 U.S. Patent No. 7,027,987 to Franz et al., filed 02/07/2001 U.S. Patent No. 6,839,702 to Patel et al., filed 12/13/2000 U.S. Patent No. 6,678,681 to Brin, filed 03/09/2000 U.S. Patent No. 6,735,624 to Rubin et al., filed 04/07/2000 U.S. Patent No. 6,721,804 to Rubin et al., filed 11/15/2000 U.S. Patent No. 6,701,522 to Rubin et al., filed 04/07/2000 and similar patents and patent applications USPTO Examination Guidelines for Computer-Related Inventions (1996)	U.S. Patents Nos. 5,953,522; 5,946,489; 5,970,249; 5,978,588; 5,983,021; 6,115,715; 6,853,868; 6,272,517; 6,271,838; 6,542,920; 6,938,085; 6,983,455; 6,499,049; 6,952,760; 6,980,916; 7,278,132; 5,630,136; 5,659,758; 7,213,240; 6,047,377; 6,044,467. Upon information and belief, Sun's Star7 (*7) was a prototype for a SPARC based, handheld wireless PDA, with a 5" color LCD with touchscreen input, a new 16 bit --5:6:5 color hardware double buffered NTSC framebuffer, 900MHz wireless networking, PCMCIA bus interfaces, multi-media audio codec, a new power supply/battery interface, a version of Unix that runs in under a megabyte, including drivers for PCMCIA, radio networking, touchscreen, display, flash RAM file system, execute-in-place, split I/D cache, with cached framebuffer support, a new small, safe, secure, distributed, robust, interpreted, garbage collected, multi-threaded, architecture neutral, high performance, dynamic programming language, While the Star7 may have never entered commercial production, Oak, the language behind it all, became the very popular Java programming language. *See generally*, http://www.youtube.com/watch?v=Ahg8OBYixL0; http://www.helium.com/items/1101180-the-history-of-java; https://duke.dev.java.net/green/; Todd Greanier, Java foundations (Sep 17, 2004) at 2-3 (http://books.google.com/books?id=vbBXKgDJun0C&pg=PA2&lpg=PA2&dq=sun+star7+gosling&source=bl&ots=LeQNYvs_DE&sig=IR3Wp6fNM58OFdyIzz3sEqgCTi4&hl=en&ei=d89eTaKSEoKBlAeAtYCfDA&sa=X&oi=book_result&ct=result&resnum=8&ved=0CEgQ6AEwBw#v=onepage&q=sun%20star7%20gosling&f=false). M. J. Bach, *The Design of the Unix Operating System*, Bell Telephone Labs., Inc. (1986) ("Bach") at chapters 1, 5, 7, 9 and 13.

Appendix B

Proposed Constructions and Evidence for Other Disputed Claim Terms

Claim Term	Oracle Proposed Construction & Supporting Evidence	Google Proposed Construction & Supporting Evidence
numeric(al) reference(s) *('104 patent)*	No construction necessary. The ordinary meaning is "a reference by location" **Intrinsic Evidence:** **Specification:** Abstract; 1:29-32; 2:35-59; 5:9-49; Figs. 1A, 6, 7, 8	a static reference to data that is a number, *i.e.*, not string- or character-based **Intrinsic/Extrinsic Evidence:** *'104 patent* at Abstract; 1:26-2:9; 2:35-59; 5:9-49; Figs. 1A, 6-8; and claims 11-41. Computer Dictionary, Second Ed., Microsoft Press 1994 ("MSFT 1994"): "**Symbolic address** A memory address that can be referred to in a program by name rather than by number. The interpreter, compiler, or assembler translates the name into the number that specifies the address." Random House Webster's Computer & Internet Dictionary (3d ed. 1999): **"absolute address** A fixed address in memory. The term *absolute* distinguishes it from a relative address, which indicates a location by specifying a distance from another location. Absolute addresses are also called *real addresses* and *machine addresses*." Webster's New World Dictionary of Computer Terms (5th ed. 1994): "**absolute addressing** A method of machine addressing in which the address part of an instruction contains an absolute address." "**numeric** Pertaining to numerals or to representation by means of numerals. Compare ALPHANUMERIC." "**numeric character** Same as DIGIT." "**symbolic address** An address, expressed in symbols convenient to the program writer, that must be translated into an absolute address (usually by an assembler) before it can be

Claim Term	Oracle Proposed Construction & Supporting Evidence	Google Proposed Construction & Supporting Evidence
		interpreted by a computer. Contrast with EXPLICIT ADDRESS." "**symbol table** A list of names used in a program with brief descriptions and storage addresses."
runtime *('205 patent)*	No construction necessary. The ordinary meaning is "during execution of the virtual machine" **Intrinsic Evidence:** **Specification:** 2:37-40; 3:15-25; 5:50-57; 6:45-67; 7:23-57; 11:23-12:21; 13:3-26; Figs. 4, 10, 13	during execution of the virtual machine instructions **Intrinsic/Extrinsic Evidence:** *'205 patent* at 2:1-5; 2:35-49; 3:15-25; 5:50-57; 6:45-67; 7:23-57; 11:23-12:21; 13:3-26; and Figs. 4, 10, 13.
protection domain *('447 and '476 patents)*	an object associated with a set of permissions that may be granted to one or more principals **Intrinsic Evidence:** **'476 specification:** 3:11-21; 3:62-4:4; 6:4-43; 6:50-56; 8:55-64; 9:65-10:46; 11:37-12:19; 12:37-64; 15:50-16:3; Figs. 2, 3 **'447 specification:** Abstract; 2:51-3:50; 3:60-62; 3:65-4:8; 8:40-49; 9:6-18; 9:38-11:26; 11:34-39; original claim 1; Figs. 2, 4, 5, 6 **U.S. Patent No. 6,047,377 specification:** 3:53-63; 16:26-17:26; 17:55-64; Figs. 4, 6 **U.S. Patent No. 6,044,467 specification:** 4:1-6; 6:64-7:2; 11:18-55; 12:30-33; 13:17-23; 14:49-15:24; Figs. 2B, 3 **'476 prosecution history:** November 19, 1999 Response **'447 prosecution history:** November 19, 1999 Response **Extrinsic Evidence:** OXFORD DICTIONARY OF COMPUTING protection domain (4th ed. 1996)	an identification of a set of permissions granted to one or more principals, which include processes, objects, and threads **Intrinsic/Extrinsic Evidence:** *'476 patent* at 2:33-40; 3:11-21; 3:62-4:4; 6:4-43; 6:50-56; 8:55-64; 9:65-10:46; 11:37-12:19; 12:37-64; 15:50-16:3; and Figs. 2, 3. *'447 patent* at Abstract; 2:23-31; 2:51-3:50; 3:60-62; 3:65-4:8; 8:40-49; 9:6-18; 9:38-11:26; 11:34-39; Figs. 2, 4-6. *'476 prosecution history*, Office Action mailed 08/25/1999, pp. 3-8. *'476 prosecution history*, Response mailed 11/19/1999, pp. 10-15. *'447 prosecution history*, Office Action mailed 09/25/1999, pp. 3-6. *'447 prosecution history*, Response mailed 11/19/1999, pp. 9-14. U.S. Patent No. 5,758,153, at 9:40-49, 11:17-27, 16:1, 18:14, 12:25-29, 25:29-57. U.S. Patent No. 5,845,129, at *passim*. U.S. Patent No. 5,649,099, at 7:64-8:13. Butler W. Lampson, "Protection," Proc. 5th Princeton Symposium on Information Sciences and Systems, *reprinted*

Claim Term	Oracle Proposed Construction & Supporting Evidence	Google Proposed Construction & Supporting Evidence
	U.S. Patent No. 5,758,153 to Atsatt et al., filed 10/24/1995	*in* ACM Operating Systems Rev. 8, 1, Jan. 1974, pp. 18-24. Allen B. Tucker, editor, *The Computer Science and Engineering Handbook*, CRC Press, Inc., 1992, pp. 1914-27. Random House Webster's Computer & Internet Dictionary (3d ed. 1999): **"object** Generally, any item that can be individually selected and manipulated. This can include shapes and pictures that appear on a display screen as well as less tangible software entities. In object-oriented programming, for example, an object is a self-contained entity that consists of both data and procedures to manipulate data."
instruction *('520 patent)*	No construction necessary. The ordinary meaning is "code that, when processed, causes an action" **Intrinsic Evidence:** **Specification:** Abstract; 3:1-9; 3:15-16; 3:23-30; 3:46-50; 3:66-4:15; 4:41-42; 4:45-48; 6:3-20; 7:48-9:39; Fig. 3; Lindholm & Yellin, THE JAVA™ VIRTUAL MACHINE SPECIFICATION Sections 2.11, 3.8, 4.7 (1996) (available at http://java.sun.com/docs/books/jvms/first_edition/html/VMSpecTOC.doc.html)	a single constant pool entry **Intrinsic/Extrinsic Evidence:** *'520 patent* at Abstract; 1:16-23; 1:61-3:30; 3:46-50; 3:54-4:18; 4:41-42; 4:45-48; 4:58-60; 6:1-20; 7:48-9:39; Fig. 3; and claims 1, 6, 9, 10, 12-14, 17, 18, 21, 22. The Java Virtual Machine Specification, Release 1.0 Beta, DRAFT, at §1.8 (GOOGLE–00376043-126): "**instruction (software)**. (1) A program statement that causes a computer to perform a particular operation or set of operations. (2) In a programming language, a meaningful expression that specifies one operation and identifies its operands." IEEE Standard Dictionary of Electrical and Electronics Terms ANSI/IEEE Std. 1984 ("IEEE Std. 1984") "**instruction** An action statement in any computer language (machine, assembly, high-level), although most often used with reference to assembly language programs. Most programs can be broken down into two types of statement: instructions and declarations. MSFT 1994. "**1.8 The Java Instruction Set** An instruction in the Java instruction set consists of a one-byte opcode specifying the operation to be performed, and zero or more operands supplying parameters or data that will be used

Claim Term	Oracle Proposed Construction & Supporting Evidence	Google Proposed Construction & Supporting Evidence
		by the operation. Many instructions have no operands and consist only of an opcode."
class file(s) *('702 patent)*	No construction necessary. A "class file" is a file in the Java class file format, defined by the Java Virtual Machine Specification. **Intrinsic Evidence:** **Specification:** Title; Abstract; 1:29-48; 2:62-3:15; 3:18-4:60; 4:64-5:28; 7:20-9:7; 9:10-10:51; 11:25-43:67; 46:9-47; 48:15-36; Figs. 1 and 3-5	file containing data and instructions describing a single class of objects and structured to be read by a program linker and/or loader **Intrinsic/Extrinsic Evidence:** *'702 patent* at Abstract; 1:29-48; 2:62-3:15; 3:18-4:60; 4:64-5:28; 7:20-9:7; 9:10-10:51; 11:25-43:67; 44:4-11; 46:9-47; 48:15-36; Figs. 1, 3-5; and claims 3, 15. The Java Virtual Machine Specification, Release 1.0 Beta, DRAFT, at §2 (GOOGLE-00376043-126): "2 Class File Format This chapter documents the Java class (.class) file format. Each class file contains the compiled version of either a Java class or a Java interface. Compliant Java interpreters must be capable of dealing with all class files that conform to the following specification. A Java class file consists of a stream of 8-bit bytes. All 16-bit and 32-bit quantities are constructed by reading in two or four 8-bit bytes, respectively. The bytes are joined together in network (big-endian) order, where the high bytes come first. This format is supported by the Java java.io.DataInput and java.io.DataOutput interfaces, and classes such as java.io.DataInputStream and java.io.DataOutputStream. The class file format is described here using a structure notation. Successive fields in the structure appear in the external representation without padding or alignment. Variable size arrays, often of variable sized elements are called tables and are commonplace in these structures. The types u1, u2, and u4 mean an unsigned one-, two-, or four-byte quantity, respectively, which are read by method such as readUnsignedByte, readUnsignedShort and readInt of the java.io.DataInput interface.

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		2.1 Format The following pseudo-structure gives a top-level description of the format of a clas `ClassFile { u4 magic; u2 minor_version; u2 major_version; u2 constant_pool_count; cp_info constant_pool[constant_pool_count - 1]; u2 access_flags; u2 this_class; u2 super_class; u2 interfaces_count; u2 interfaces[interfaces_count]; u2 fields_count; field_info fields[fields_count]; u2 methods_count; method_info methods[methods_count]; u2 attributes_count; attribute_info attributes[attribute_count]; }` …"
child runtime system process *('720 patent)*	a virtual machine cloned from another virtual machine **Intrinsic Evidence:** **Specification:** 2:44-51; 3:6-10; 3:27-32; 4:24-5:6; 5:14-40; 7:51-8:8; 9:10-27; original claim 11; Figs. 1-5B, 9	an instance of a program in execution which clones the memory space of a *master runtime system process* **Intrinsic/Extrinsic Evidence:** *'720 patent* at 2:44-51; 3:6-10; 3:27-32; 4:24-5:6; 5:14-40; 7:8-14; 7:27-33; 7:51-8:8; 8:11-20;9:10-27; Figs. 1-6. *Oracle Reference Glossary* (http://java.sun.com/docs/glossary.html): "**runtime system** The software environment in which programs compiled for the Java virtual machine can run. The runtime system includes all the code necessary to load programs written in the Java programming language, dynamically link native methods, manage memory, handle exceptions, and an implementation of the Java virtual machine, which may be a Java interpreter." M. J. Bach, *The Design of the Unix Operating System*, Bell Telephone Labs., Inc. (1986) ("Bach") at chapters 1, 5, 7 and 9. S. Srinivasan, Advanced Perl Programming at 194-95 (1997).

Claim Term	Oracle Proposed Construction & Supporting Evidence	Google Proposed Construction & Supporting Evidence
class resolver *('720 patent)*	software, such as a class loader, that resolves a class **Intrinsic Evidence:** **Specification:** 6:55-60; 8:47-50; 9:38-60; Fig. 10 **Extrinsic Evidence:** Gosling et al., THE JAVA™ APPLICATION PROGRAMMING INTERFACE, VOLUME 1: CORE PACKAGES Section 1.4 Class ClassLoader (1996). Gosling et al., THE JAVA™ LANGUAGE SPECIFICATION 221 (1996) ("The binary representation of a class or interface references other classes or interfaces and their fields, methods, and constructors symbolically, using the binary names (§13.1) of the other classes and interfaces (§13.1)…Before a symbolic reference can be used it must undergo *resolution*, wherein a symbolic reference is checked to be correct and, typically, replaced with a direct reference that can be more efficiently processed if the reference is used repeatedly.") Lindholm & Yellin, THE JAVA™ VIRTUAL MACHINE SPECIFICATION Section 2.17.3 (2d ed. 1999) ("Before a symbolic reference can be used it must undergo *resolution*, wherein a symbolic reference is validated and, typically, replaced with a direct reference that can be more efficiently processed if the reference is used repeatedly.") Lindholm & Yellin, THE JAVA™ VIRTUAL MACHINE SPECIFICATION Section 5.4.3 (2d ed. 1999) ("The process of dynamically determining concrete values from symbolic references in the runtime constant pool is known as resolution.") JAVA 2 PLATFORM SE V1.4.2 API SPECIFICATION Class ClassLoader ("an object that is responsible for loading classes.") (available at http://download.oracle.com/javase/1.4.2/docs/api/java/lang/ClassLoader.html)	Indefinite – cannot be construed

Claim Term	Oracle Proposed Construction & Supporting Evidence	Google Proposed Construction & Supporting Evidence
master runtime system process *('720 patent)*	a virtual machine from which other virtual machines are cloned **Intrinsic Evidence:** **Specification:** 2:44-51; 3:6-10; 4:24-53; 5:14-40; 7:8-14; 7:27-33; 7:51-55; 8:11-20; original claim 11; Figs. 1-6	an instance of a program in execution which interprets machine-portable code defining compatible applications **Intrinsic/Extrinsic Evidence:** *'720 patent* at 2:44-51; 3:6-10; 3:27-32; 4:24-5:6; 5:14-40; 7:8-14; 7:27-33; 7:51-8:8; 8:11-20;9:10-27; Figs. 1-6. *Oracle Reference Glossary* (http://java.sun.com/docs/glossary.html): "**runtime system** The software environment in which programs compiled for the Java virtual machine can run. The runtime system includes all the code necessary to load programs written in the Java programming language, dynamically link native methods, manage memory, handle exceptions, and an implementation of the Java virtual machine, which may be a Java interpreter." M. J. Bach, *The Design of the Unix Operating System*, Bell Telephone Labs., Inc. (1986) ("Bach") at chapters 1, 5, 7 and 9. S. Srinivasan, Advanced Perl Programming at 194-95 (1997).
resolving *('720 patent)*	validating symbolic references and, typically, replacing them with direct references that can be more efficiently processed **Intrinsic Evidence:** **Specification:** 6:55-60; 8:47-50; 9:38-60; Fig. 10 **Extrinsic Evidence:** Gosling et al., THE JAVA™ APPLICATION PROGRAMMING INTERFACE, VOLUME 1: CORE PACKAGES Section 1.4 Class ClassLoader (1996). Gosling et al., THE JAVA™ LANGUAGE SPECIFICATION 221 (1996) ("The binary representation of a class or interface references other classes or interfaces and their fields, methods, and constructors symbolically, using the binary names (§13.1) of the other classes and interfaces (§13.1)…Before a symbolic reference can be used it must undergo *resolution*, wherein a	Indefinite – cannot be construed

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class preloader *('720 patent)*	This claim term was not prioritized by Google until late in the meet-and-confer process and the parties agreed that Oracle shall have additional time to provide its proposed construction and supporting evidence to Google. The parties expect to continue conferring in good faith regarding this and other disputed claim terms.	a program for dynamically loading and initializing a class definition from an individual class file prior to the first reference to that class by a program **Intrinsic/Extrinsic Evidence** *'720 patent* at Abstract; 1:8-11; 2:27-40; 2:44-3:40; 3:59-62; 5:7-6:67; 8:9-36; 9:29-67; Figs. 2, 6, 10; claims 1; 10; 20. U.S. Patent No. 6,405,367, at 2:46-48, 6:66-7:14. U.S. Patent No. 6,738,977, at 8:6-9, 6:23-38. *New IBM Technology feature Persistent Reusable Java Virtual Machines*, 1 (2001). U.S. Patent No. 6,823,509, at 4:26-41.